Project title: Finger Print Assisted In-house Actuation

Finger print reading is a foolproof biometric based authentication mechanism. In a smart house setting, we believe the core idea is to alleviate the house inhabitants from doing mundane things repeatedly. Our project is based on this line of thought and is meant to address the following two themes.

1) Customizable Hospitality

By deploying a finger print reader at the house entrance door (as a doorbell actuator for instance), the house should “smartly” start customizing its internal environment to the personal preferences of the person at the door. If the person is an inhabitant of the house:

i. The lights usually switched on by the inhabitant when he/she arrives at home should be switched on automatically.
ii. Temperature control in the house (if it exists) should turn on based on the personal preference of the inhabitant.
iii. The television channel preferred for viewing when the inhabitant comes home should be turned on.

All of the above actions should be customizable when required based on temporal preference changes. A non-inhabitant given permission to access the house should also be afforded these settings. The fact that the house may have multiple inhabitants should be considered as well. If someone is already in the house and the actions above have already been initiated, the house should be smart enough to block the actions from happening again if other inhabitants arrive at the door.

2) Safety and Security (subject to time)

If the person pressing the doorbell and requesting authentication is not an inhabitant of the house, there are three cases that need to be considered:

i. This person is an acquaintance. In this case his/her fingerprint will be recognized and the inhabitant of the house will be notified of the identity of this person. This could be done through an intercom (could have a light sensor based door lamp which turns on if it is night time or there is poor visibility).
ii. The person is not an acquaintance. This could also be conveyed through the intercom system. Additionally (time permitting) a concealed outdoor camera could come on to focus on the person at the door and this could be displayed on the TV.
iii. The person is an intruder. This can be recognized if someone tries to force open the door. An alarm system could come on to notify the in-house inhabitants, neighbors and security services.